

NON-PUBLIC?: N
ACCESSION #: 8805310364
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Millstone Nuclear Power Station Unit 3 PAGE: 1 of 3

DOCKET NUMBER: 05000423

TITLE: Reactor Trip Due to Turbine Trip Due to Low Condenser Vacuum
EVENT DATE: 04/13/88 LER #: 88-014-00 REPORT DATE: 05/13/88

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Barrett W. Nichols, Engineer TELEPHONE #: 203-447-1791 Ext. 5493

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: On April 13, 1988 at 1652 hours, with the plant at 100% power in Mode 1, the plant received an automatic Reactor Trip as a result of a Turbine Trip. The Turbine Trip was due to a loss of condenser vacuum in the "A" Main Condenser. Loss of Condenser vacuum was caused by the automatic tripping of the "A" and the "B" Circulating Water Pumps (CWS) due to high differential pressure across the Traveling Screens.

High differential pressure across the traveling screens was a result of: a) leaking strainer isolation valves on the operating train which required that the associated Screen Wash Pump be stopped in order to clean the strainer, b) only one Screen Wash Pump being in operation, and c) environmental conditions causing higher than normal seaweed fouling on the screens. Root cause of the trip was leaking isolation valves on the Screen Wash Duplex Strainers requiring the operating pump to be removed from service.

As corrective action, the operational procedures have been updated to provide guidance on cleaning of the Screen Wash strainers. The out of service pump has been fixed.

(End of Abstract)

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I. Description of Event

On April 13, 1988 at 1652 hours with the plant at 100% power in Mode 1, 2250 psia and 557 degrees fahrenheit, the plant received an Automatic Reactor Trip as a result of a Turbine Trip. The Turbine Trip occurred due to low condenser vacuum caused by the loss of both Circulating Water (CWS) Pumps supplying the "A" condenser bay. The Circulating Water Pumps tripped due to a high differential pressure across the intake Traveling Screens.

At 1640 on April 13 the "B" Screen Wash System (SWT) was taken out of service to have its strainer cleaned. A control room operator noted that the Traveling Screen differential pressure was rising for all six intake structure bays and notified the non-licensed operator (PEO) that the strainer should be put back in service as soon as possible. The "A" CWS pump tripped before the strainer could be put back in service. The "B" SWT system was restarted. The "B" CWS pump then tripped. Turbine load was reduced at 5% per minute and attempts were made to restart the "B" CWS pump. Before the pump could be restored, the turbine tripped on low condenser vacuum.

High Traveling Screen differential pressure was a result of a number of factors. The "A" Screen Wash pump was out of service for maintenance. The strainer on the "B" train indicated that it was fouled. Due to leaking isolation valves, the strainer could not be cleaned without removing it from operation. The environmental conditions which existed that day resulted in extremely high seaweed fouling rates on both sets of screens. While the "B" train of the Screen Wash System was out of service the differential pressure across the "A" and the "B" train Traveling Screens increased to the Circulating Water Pumps trip setpoint.

After the trip occurred, immediate operator action was to verify that the Reactor Trip and Bypass breakers had opened, that all control rods were fully inserted and that neutron flux was decreasing.

A Feedwater Isolation signal was received due to low average temperature in the Reactor Coolant System after the trip. This is a normal plant response. No other Engineered Safety Features Actuation were required or initiated, and the plant was stable in Mode 3 (Hot Standby) at 1707 hours as indicated by Average Reactor Coolant System Temperature returning to a stable value.

II. Root Cause

The root cause of the event was leaking isolation valves on the Screen

Wash Duplex Strainers, requiring the operating Screen Wash pump to be removed from service, in order to clean the strainer. Contributing causes were the environmental conditions at the time, and having the other Screen Wash Pump out of service for maintenance.

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III. Analysis of Event

Subsequent investigation showed that due to the time of the year, wind direction and velocity, an unusually large quantity of seaweed was present at the Unit 3 Intake structure. All plant protection systems performed as designed in response to this occurrence and the event posed no danger to the health and safety of the public.

This event is being reported in accordance with 10CFR 50.73(a)(2)(iv), any event or condition that results in manual or automatic actuation of an Engineered Safety Feature. Immediate notifications were performed in accordance with 10CFR 50.72(b)(2)(ii).

IV. Corrective Action

As immediate corrective action, the "A" Screen Wash Pump was placed back in service. The "B" Train Screen Wash Strainer Isolation Valves were disassembled and cleaned.

The operating procedure for the Screen Wash strainers has been modified to provide more guidance to non-licensed operators on the cleaning of the Screen Wash strainers. These actions serve both as corrective actions and action to prevent recurrence.

V. Additional Information

Licensee Event Report number 86-035 is similar in that a Reactor Trip due to a Turbine Trip resulted when fouling of the Intake Screens caused Circulating Water Pumps to trip causing condenser vacuum to decrease.

EIIS Codes

Systems Components

Circulating Water System - KE Pumps - P
Traveling Water Screens - SCN
Condenser - COND
Strainers - STR

ATTACHMENT # 1 TO ANO # 8805310364 PAGE: 1 of 1

NORTHEAST UTILITIES General Offices Selden Street, Berlin, Connecticut
THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY P.O. BOX 270
HOLYOKE WATER POWER COMPANY HARTFORD, CONNECTICUT 06141-0270
NORTHEAST UTILITIES SERVICE COMPANY (203) 665-5000
NORTHEAST NUCLEAR ENERGY COMPANY
May 13, 1988
MP-11811

Re: 10CFR50.73(a)(2)(iv)

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Reference: Facility Operating License No. NPF-49
Docket No. 50-423
Licensee Event Report 88-014-00

Gentlemen:

This letter forwards Licensee Event Report 88-014-00 required to be submitted within thirty days pursuant to 10CFR50.73(a)(2)(iv), any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS).

Yours truly,
NORTHEAST NUCLEAR ENERGY COMPANY
/s/ Stephen E. Scace
Stephen E. Scace
Station Superintendent
Millstone Nuclear Power Station

SES/BWN:mo
Attachment: LER 88-014-00
cc: W. T. Russell, Region I
W. J. Raymond, Senior Resident Inspector

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